



WHITE-RODGERS

TYPE 668-430 Intermittent Ignition* — Non Recycling OIL BURNER CONTROL With Safety Reset Indicator Light (For use with Type 956 Flame Detector, on 2-wire or 3-wire Series 10 systems)

This type 668 Oil Burner Control provides safe operation of oil burners on heating plants where ignition during the entire burner cycle is desired. It may be used with either a 2-wire or a 3-wire Series 10 thermostat.

This 668 control is equipped with a red **Safety Reset Indicator Light** which glows whenever the control locks out on safety to stop the burner. The 668 is for use with the 956 Flame Detector.

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*Formerly called constant ignition.

INSTALLATION

The proper **Location** and **Mounting** of the primary oil burner control panel on the burner and the flame detector with respect to the oil flame shall be determined by the furnace, boiler, or burner manufacturer.

SPECIFICATIONS

Room Thermostat: Set dial of adjustable heater at .4A. If Time Delay Fan Switch is used, set dial at .5A (for typical Fan Switch current of .15A.)

Time Delay Fan Switch (.15A Max. at 25v): If used, connect to F1-B terminals.

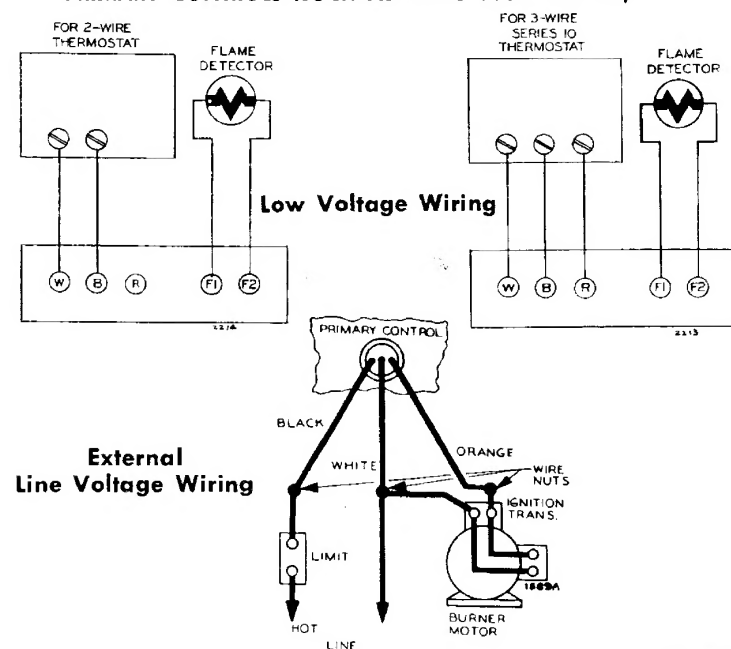
Safety Timing: 45 seconds.

WIRING

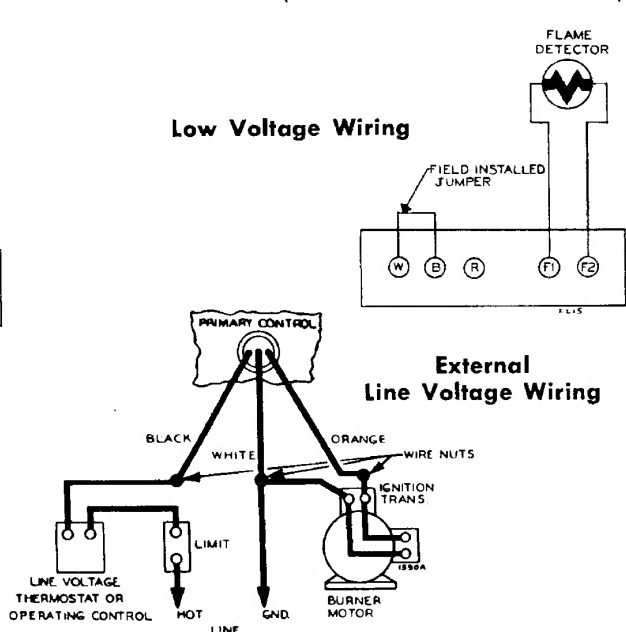
If this control, supplied as part of a furnace, boiler or burner, is wired to the equipment or if the manufacturer of such equipment provides instructions for wiring this control, then follow his recommendations. If no special wiring instructions are given, then follow the electrical connections shown.

For more complicated systems, especially for hot water heating, consult the manufacturer of the heating plant or write to White-Rodgers giving full details of the desired sequence of control operation.

USING 668-430 TO REPLACE LOW VOLTAGE PRIMARY CONTROLS (SUCH AS TYPES 668-1 TO -99)



USING 668-430 TO REPLACE LINE VOLTAGE PRIMARY CONTROLS (SUCH AS TYPES 6L68-1 TO -99)



TESTING

The following control checks should be made after each installation to insure that the controls are correctly wired and functioning properly.

1. Open the main line switch.
2. Adjust thermostat or operating control to call for heat.
3. Operate the manual reset button on top of control.
4. Make certain that high limit control is set at the correct temperature.

5. Open the hand valve in the oil line. The system is now ready for the following tests.

A. NORMAL CYCLE:

Close the line switch. The burner should start and continue to run normally. (If burner starts, establishing flame, but then locks out on safety, make "Flame Detector Check" at this time.

(TESTING CONTINUED ON NEXT PAGE)



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PART No. 37-2649-A
Replaces 37-2649

B. SAFETY TIMING:

1. Let the burner run for about 5 minutes. Then remove one of Flame Detector leads from the "F" terminals. After a time period corresponding to the safety timing has elapsed, the control should lock out on safety, stopping the burner and causing the red Safety Reset Indicator Light to glow.
2. Open the line switch.
3. Replace Flame Detector lead removed in step 1.
4. Wait about 3 minutes. Then operate the manual reset button on top of control.

C. HIGH LIMIT AND THERMOSTAT CHECK:

1. Close the line switch to start the burner.
2. Lower the setting of the high limit control to its lowest setting. This should stop the burner, unless furnace or boiler temperature is below the minimum setting of the high limit.
3. Return high limit control to its proper setting. Burner should restart.
4. With the burner running, turn thermostat to its lowest setting. This should stop the burner, unless actual room temperature is below the lowest setting of the thermostat. (Note: On systems supplying domestic hot water, burner will continue to run if low limit control is not satisfied.)
5. Return thermostat to its proper setting.

D. FLAME DETECTOR CHECK: (This test is not required if the control performs as described in test A.)

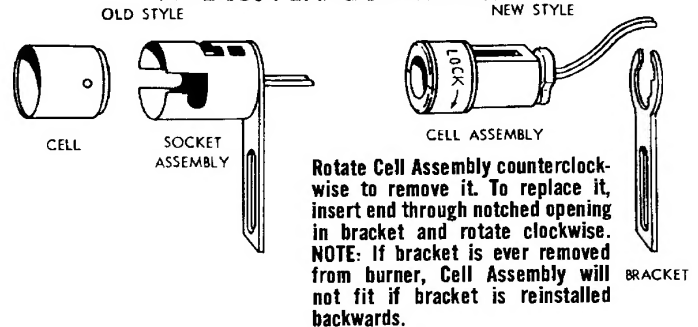
If the burner starts but the control locks out (stopping the burner), check the flame detector as follows:

1. Open the line switch.
2. Connect one end of a wire jumper to one of the "F" terminals.
3. Start the burner by closing the line switch. As soon as flame has been established, connect other end of the wire jumper to the other "F" terminal. **WARNING: The control provides no safety protection with this jumper installed. Do NOT leave burner in this condition except for making this check.**
If the control still locks out with the jumper installed, the control should be replaced. If the control does not lock out, however, check the operation of the 956 flame detector as follows:
4. If safety lockout problem is of an occasional nature, the following additional check may be made to insure that flame detector location is not a marginal one:
 - (a) Disconnect flame detector leads from "F" terminals.

D. FLAME DETECTOR CHECK (Continued):

Possible Cause of Trouble	Correction
Open circuit in Cell	Replace Cell (or Cell Assembly) of 956 Flame Detector. Do not disturb position of bracket or socket assembly.
Flame detector improperly positioned.	Locate flame detector according to the burner manufacturer's specifications.

TYPE 956 FLAME DETECTORS



PART No. OF REPLACEMENT PARTS

63-0485	Cell only (Old Style)
63-2006	Cell Assembly (New Style)

- (b) Attach a jumper wire to one "F" terminal. Start burner. Then immediately connect jumper wire to the other "F" terminal. Burner should continue to run.
- (c) With burner running, attach flame detector leads to an accurate ohmmeter. Reading of ohmmeter should be below 1000 ohms, and preferably as low as 500 ohms.
(NOTE: If indicator of ohmmeter remains steady, readings up to 2000 ohms should also be acceptable. Generally, though, the lower the reading, the better the application, and less likely the chance of a variation in the burner flame causing a safety lock-out.)
- (d) If resistance of flame detector is over 1000 ohms, it may not be able to see the burner flame properly. Check alignment of the flame detector through the hole in the static pressure disc. Clean this hole if it is blocked by foreign matter. Check for broken "F" wires.
- (e) If flame detector alignment is good but resistance is still high, readjustment of burner flame and/or nozzle replacement may be necessary (according to burner manufacturer's instructions).
- (f) **WARNING: Be sure to remove wire jumper after finishing this flame detector check.**

OPERATION OF MANUAL LOCKOUT LEVER ON SAFETY SWITCH

To insure shutdown of burner during servicing, push in on Safety Reset Indicator Light to trip Safety Switch, causing the Reset Button to pop out and Indicator Light to glow.

CAUTION: ELECTRIC SHOCK IS STILL A POSSIBILITY.

Although lockout of safety switch will interrupt the entire line voltage circuit to burner, terminal No. 1 (power supply) will remain "Hot".

When burner servicing is finished, simply push in on Reset Button to reset the Safety Switch.

